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ABSTRACT

This study used national data to categorize college-bound high school seniors on each of five criteria identified as representative of those required for admission to highly selective colleges. Data came from the National Education Longitudinal Study of 1988 (NELS: 88). Selected criteria included grade point average (GPA), the Scholastic Aptitude Test (SAT) scores, courses taken, teachers' perceptions, and participation in extracurricular activities. Demographic and social characteristics of the college-bound seniors who met the highly selective criteria were examined and less restrictive criteria were considered as well. Findings included: (1) more females than males excelled in grades; (2) the percentage of college-bound seniors who achieved GPAs of 3.5 or more and SAT scores of 1100 or more was higher for Asian and White students than for Hispanic, Black, or American Indian students; (3) seniors from high socio-economic backgrounds were more likely than their contemporaries at other status levels to meet any of the selective criteria; and (4) about one-half of college-bound seniors attending schools identified as "all other private schools" scored 1100 or higher on the SAT while about 20 percent of their peers at public and Catholic schools achieved this level. Attached are four tables and information on the study methodology. (JB)

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NATIONAL CENTER FOR EDUCATION STATISTICS

Statistics in Brief

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Making the Cut: Who Meets Highly Selective College Entrance Criteria?

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After taking the SAT and/or ACT test batteries and completing the college application process, the typical college-bound high school senior anxiously waits for college acceptance letters. While the students are waiting, admission officers are checking to see which applicants meet the admission's criteria established for their college. Depending on the college to which a student applies, these admission criteria can vary substantially and may include combinations of factors such as GPA, class rank, SAT/ACT scores, teacher recommendations, campus interviews, essays, and participation in community activities. It is thus important for a student to know the admission criteria for each college as applications are submitted. For students applying to highly selective colleges, the competition is strong. Not everyone can meet the criteria.

In fact, about six percent (5.9 percent) of all 1992 college-bound high school seniors[1] met each of five admission criteria that the authors chose as being representative of those considered by highly selective colleges[2] (table 1). These students achieved high school grade point averages (GPA) of 3.5 or higher; each of them scored 1100 or higher on the SAT[3]; while in high school these students accumulated four credits in English, three in math, three in science, three in social science, and two in foreign language[4]; teacher responses to a series of questions regarding these students were positive; and they participated in two or more school-related extracurricular activities. When the five criteria were considered separately the percent meeting the individual criteria ranged from 19.2 percent for GPA and 22.0 percent for SAT scores to 67.7 percent for participation in extracurricular activities.

In this report, data from the National Education Longitudinal Study of 1988 (NELS:88) were used to categorize college-bound seniors on each of the five criteria identified by the authors as representative of those required for admission to highly selective colleges.[5] In an effort to identify well-rounded students who excel in many areas, care was taken to insure that these criteria go beyond the academic criteria. In addition to the GPA, SAT scores, and courses taken, teachers' perceptions and participation in extracurricular activities were included to get some measure of involvement in nonacademic school related activities. (The fact that teachers' recommendations may well refer to academic performance and that some of the extracurricular activities may be academic in nature should not be overlooked). Demographic and social characteristics of the college-bound seniors who met the highly selective criteria are examined, and less restrictive criteria are considered as well.

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Who Makes the Cut: By Gender, Race-Ethnicity, Socio-Economic Status and Type of School?

More females excelled in grades, with 22.5 percent of females compared to 15.3 percent of males achieving GPAs of 3.5 or higher. In contrast, males were more likely to achieve high SAT scores, with 26.7 percent of males compared to 18.0 percent of females with SAT scores of 1100 or higher. While the percentages of males and females for each of the three remaining criteria were roughly comparable; the net effect shown was that 6.9 percent of the college-bound females met all five criteria, compared to 4.7 percent of the college-bound males.

The percentage of college-bound seniors who achieved GPAs of 3.5 or more, or SAT scores of 1100 or more was higher for Asian and white students than for Hispanic, black, or Native American students. Approximately one-fourth of all college-bound Native American students took all of the courses specified in the highly selective criteria, compared to about one-half of the Hispanic, black, white, and Asian students. Relatively more Asian and white college-bound seniors met all five highly selective criteria compared to Hispanic, black, and Native American students.

College-bound seniors from the high socio-economic status (SES) level were more likely than their contemporaries at middle or low SES levels to meet any of the highly selective criteria for GPA, SAT scores, or courses taken.[6] The same patterns were evident when students in the middle SES level were compared with students at the low SES group level. Similarly, the percentage of college-bound seniors meeting all five criteria was highest among students at the high SES level (8.8 percent), intermediate among students in the middle SES level (4.1 percent), and lowest among the students at the low SES group level (1.5 percent).

Comparisons of the performance of students at public schools, Catholic schools and all other private schools showed that approximately one-half of the college-bound seniors attending schools in the group identified as "all other private schools" scored 1100 or higher on the SAT (52.6 percent); while about 20 percent of their peers at public and Catholic schools achieved this level.[7] Despite the size of the notable differences on SAT performances, the percentage of college-bound seniors meeting each of the other four criteria did not vary substantially by type of school. The same was true when all five criteria were considered together.

Lowering the Cut: How Many More College-Bound High School Seniors Meet Less Restrictive Criteria?

Lowering SAT and GPA Requirements

The percentage of students meeting the highly selective criteria for SAT scores and GPA scores was lower than the percentages evident for each of the other three criteria (table 1). Because of this finding, the effect of lowering the cutpoints for these two criteria was considered (table 2). When the cutpoint for the SAT score was lowered from 1100 to 950, with the other four criteria remaining at the highly selective level, the percentage of college-bound seniors meeting the criteria increased from 5.9 percent to 8.5 percent. Similarly, if the cutpoint for the GPA is lowered from 3.5 to 3.0 (again with the other four criteria held constant at the selective level), the percentage of college-bound seniors meeting the new criteria was 8.3 percent. The combination of lower cutpoints for both SAT scores and GPAs (with the remaining three criteria all held constant) more than doubled the percentage of college-bound seniors meeting all five criteria, with the percentage increasing from 5.9 percent to 14.3 percent.

Lowering Course-taking Requirements

Separate analyses of course-taking patterns have shown that criteria including four English credits, three social studies credits, and/or two foreign language credits may limit the number of high ability students who meet the highly selective course-taking requirements (see table 4). For example, even when a highly selective group of high ability students was considered (i.e., 3.5 GPA and 1250 SAT[8]), only 91.4 percent met the English requirement (4 credits), 82.0 percent met the social studies requirement (3 credits), and 87.3 percent met the foreign language requirement (2 credits) as compared to 97.7 percent who met the three credit mathematics requirement. Considered along with the lower requirements for GPA and SAT (i.e., 3.0 GPA and 950 SAT) scores, however, the reduction in number of credits required for any one of these three subjects (i.e., foreign language — to less than two credits; English — to three credits; and social studies — to two credits) did not appreciably change the overall percentage of college-bound seniors meeting the specified criteria

(15.5 percent, 15.7 percent, and 16.1 percent respectively versus 14.3 percent — see table 2). It was only when these reduced course requirements were examined in combination (i.e., English and foreign language — 17.0 percent; English and social studies — 17.7 percent; social studies and foreign language — 17.7 percent; or English, social studies, and foreign language — 19.5 percent) that the increases in percentage of college-bound students meeting the reduced requirements became significant. For example, 19.5 percent of college-bound students had three credits in mathematics and met the lowered requirements of three credits in English, two credits in social studies, and less than two credits in foreign language when combined with lower criteria for GPA (3.0) and SAT scores (950).

Conclusions

It was surprising to find that only 5.9 percent of college-bound seniors met the highly selective criteria that included: (1) a high school GPA of 3.5 or higher; (2) a score of 1100 or higher on the SAT; (3) a course-taking pattern that included four English credits, three mathematics credits, three science credits, three social studies credits, and two foreign language credits; (4) positive teacher comments regarding student; and (5) participation in two or more school-related extracurricular activities. Even more surprising was the finding that after lowering the cutpoints on SAT scores (950), GPA (3.0), English credits (three), social studies (two), and foreign language credits (less than two), the percentage meeting the lower requirements only increased the proportion making the reduced cut to 19.5 percent. This means that approximately 80 percent of 1992 college-bound high school graduates did not meet the reduced criteria. Even for these students, though, there were many options available. Admissions criteria varied widely across all colleges, even among those popularly labeled "highly selective," "selective," and "moderately selective," to say nothing of the differences generally between four-year and two-year colleges. Nevertheless, these findings pointed to the fact that students need to begin preparing early, particularly if they plan to apply to highly competitive universities and colleges. Since a student's decision to take algebra, foreign language, or biological science in junior high school can affect course options and selections in high school, it is important for both the students and their parents to be aware of admission criteria at the colleges and universities where the student is likely to apply.

Table 1.—Percentage of 1992 college-bound high school graduates classified as meeting each of five specified criteria identified as being important to college admissions officers

	3.5+ GPA[1]	1100+ SAT[2]	4E+.. 2FL[3]	Teacher Comments[4]	2 plus Activ[5]	Meet all 5 criteria
Total %	**19.2%**	**22.0%**	**55.5%**	**42.1%**	**67.7%**	**5.9%**
(se)	(0.92)	(1.35)	(1.76)	(1.33)	(1.34)	(0.38)
Gender						
Male	**15.3**	**26.7**	**53.4**	**38.7**	**64.6**	**4.7**
	(1.12)	(2.42)	(2.69)	(2.05)	(2.09)	(0.49)
Female	**22.5**	**18.0**	**57.2**	**45.0**	**70.3**	**6.9**
	(1.38)	(1.09)	(1.87)	(1.78)	(1.85)	(0.59)
Race/Ethnicity						
Asian	**29.3**	**27.7**	**59.5**	**48.7**	**68.0**	**8.8**
	(3.70)	(3.18)	(4.29)	(4.02)	(3.79)	(1.49)
Hispanic	**10.3**	**8.0**	**47.0**	**40.8**	**63.2**	**2.5**
	(2.27)	(1.85)	(5.35)	(4.60)	(4.30)	(1.09)
Black	**4.1**	**2.6**	**55.6**	**39.8**	**67.6**	**0.4**
	(0.93)	(0.67)	(4.43)	(4.70)	(3.95)	(0.26)
White	**20.9**	**25.0**	**56.1**	**42.1**	**68.1**	**6.5**
	(1.09)	(1.61)	(1.99)	(1.54)	(1.58)	(0.44)
Amer. Indian/	**5.3**	**2.2**	**23.6**	**25.7**	**57.5**	**0.0**
Alaskan Native	(3.30)	(2.24)	(8.13)	(9.21)	(9.12)	(0.00)
Socio-Economic Status						
High	**24.4**	**32.4**	**64.5**	**48.1**	**72.0**	**8.8**
	(1.73)	(2.43)	(2.32)	(2.30)	(2.30)	(0.69)
Middle	**16.1**	**14.7**	**50.1**	**37.7**	**65.7**	**4.1**
	(1.07)	(1.06)	(2.25)	(1.81)	(1.71)	(0.45)
Low	**10.0**	**8.5**	**40.0**	**36.0**	**57.2**	**1.5**
	(1.36)	(1.34)	(3.44)	(3.81)	(3.44)	(0.60)
Type of High School						
Public	**19.8**	**20.2**	**54.3**	**42.3**	**67.7**	**5.9**
	(1.00)	(0.94)	(1.80)	(1.41)	(1.44)	(0.40)
Catholic	**14.7**	**20.6**	**63.8**	**46.6**	**60.5**	**6.8**
	(2.72)	(2.86)	(4.36)	(4.28)	(3.55)	(1.68)
Other Private	**17.5**	**52.6**	**59.3**	**31.5**	**79.2**	**4.2**
	(5.27)	(10.80)	(10.01)	(7.84)	(6.24)	(1.28)
NAIS	**12.6**	**71.7**	**71.4**	**29.9**	**90.1**	**4.2**
	(5.48)	(11.50)	(11.82)	(12.24)	(4.57)	(2.06)
Other	**23.0**	**30.5**	**45.2**	**33.4**	**67.3**	**4.3**
	(7.41)	(8.10)	(8.75)	(8.22)	(7.87)	(1.41)

[1]High School Grade Point Average (GPA) of 3.5 or higher.
[2]SAT equivalent score of 1100 or higher.
[3]Accumulated four credits in English, three in math, three in science, three in social studies, and two in a foreign language.
[4]Positive teacher responses to series of questions regarding student.
[5]Participated in two or more extra-curricular activities.

SOURCE: National Education Longitudinal Study of 1988: Second Follow-up (1992), U.S. Department of Education, National Center for Education Statistics.

Table 2.—Percentage of 1992 college-bound high school graduates meeting a set of five criteria when both less restrictive and more restricted models are used

Model	Selective Criteria: GPA[1]	SAT Score[2]	High School Credits Earned[3]: Engl	Math	Science	Social Studies	Foreign Language	Computers	Teacher Comments[4]	Number of Activities[5]	Percent Meeting All 5 Criteria: Percent	(S.E.)
# 1	3.5	1100	4	3	3	3	2	*	positive	2 or more	5.9%	(.38)
Less Restrictive												
# 2	3.5	950	4	3	3	3	2	*	positive	2 or more	8.5	(.69)
# 3	3.0	1100	4	3	3	3	2	*	positive	2 or more	8.3	(.49)
# 4	3.0	950	4	3	3	3	2	*	positive	2 or more	14.3	(.89)
# 5	3.0	950	4	3	3	3	*	*	positive	2 or more	15.5	(.90)
# 6	3.0	950	3	3	3	3	2	*	positive	2 or more	15.7	(.91)
# 7	3.0	950	4	3	3	2	2	*	positive	2 or more	16.1	(.99)
# 8	3.0	950	3	3	3	3	*	*	positive	2 or more	17.0	(.92)
# 9	3.0	950	3	3	3	2	2	*	positive	2 or more	17.7	(1.00)
# 10	3.0	950	4	3	3	2	*	*	positive	2 or more	17.7	(1.01)
# 11	3.0	950	3	3	3	2	*	*	positive	2 or more	19.5	(1.03)
More Restrictive												
# 12	3.5	1250	4	3	3	3	2	*	positive	2 or more	2.7	(.24)
# 13	3.5	1100	4	3	3	3	2	.5	positive	2 or more	3.6	(.29)
# 14	3.5	1250	4	3	3	3	2	.5	positive	2 or more	1.5	(.18)

*Indicates that model did not use this criteria
[1]High School Grade Point Average (GPA)
[2]SAT equivalent score
[3]Credits earned during high school
[4]Teacher responses to series of questions regarding student
[5]Number of Extra-curricular activities in which student participated
[6]***Indicates the model did not use this criteria

SOURCE: National Education Longitudinal Study of 1988: Second Follow-up (1992), U.S. Department of Education, National Center for Education Statistics.

Endnotes

1. The student sample used for this study included all graduating seniors who met the following criteria: (1) graduated by the summer of 1992; (2) transcripts were collected as part of the second follow-up data collection activities; (3) the transcript included records of courses taken in 9th, 10th, 11th, and 12th grades; (4) the transcript reported at least 16 credits; (5) the results of SAT or ACT tests were included on the transcript; and (6) the student indicated that he/she had applied to one or more postsecondary schools (variable F2S60A). Students who met these criteria are referred to in this report as college-bound.

2. For example, *Barron's Profiles of American Colleges* (copyright 1992 by Barron's Educational Series, Inc.) describes the "Most Competitive" group of colleges as those requiring incoming students to have grade averages of B+ to A and to be ranked in the top 10 - 12 percent of their high school graduating class. The median freshman SAT scores at the "Most Competitive" colleges generally range from 1250 to 1600 (perfect score).

3. Alternatively, some students take the ACT, where a score of 24 is the equivalent for the 1100 SAT score used in this paper as an admission requirement. For this sample, a score of 1100 on SAT or 24 on the ACT are equivalent to the 70th percentile. The SAT/ACT crosswalk was developed using NELS:88 data. See appendix for detailed description.

4. These course-taking patterns represent an adaptation of the recommendation presented by the National Commission on Excellence for college-bound students (*A Nation at Risk* - 1983). The course-taking criteria used in this paper do not include the computer requirement (.5 credit).

5. Student self reports, school reports, teacher reports, and high school transcripts were used in this analysis.

6. Definitions for socio-economic status (SES) and other variables are included in the technical appendix.

7. When the National Association of Independent Schools (NAIS) was considered separately, 71.7 percent of the college-bound seniors scored 1100 or higher on the SAT equivalent.

8. For this analysis, high ability college-bound students were defined as having a GPA of 3.5 and an SAT score equivalent of 1250. A score of 1250 on the SAT approximates the 88th percentile as compared to an SAT score of 1100 (used in previous analyses in this paper) which approximates the 70th percentile. The authors were interested in examining the course-taking patterns of high ability students (e.g., did the student take 4 credits in English and three credits in social studies?).

APPENDIX: Technical Notes for NELS:88

The NELS:88 Baseline comprised a national probability sample of all regular public and private 8th grade schools in the 50 states and the District of Columbia in the 1987-88 school year. During the base year data collection, students, parents, teachers, and school administrators were selected to participate in the survey. A total of 24,599 eighth grade students participated (93 percent response rate) in the base-year survey (see NELS:88 Base Year Sample Design Report, NCES 90-463).

The NELS:88 first follow-up survey was conducted during the spring of 1990. Students, dropouts, teachers, and school administrators participated in the follow-up, with a successful data collection effort for 17,424 individuals in the student survey (approximately 93 percent response rate). Prior to data collection, the sample was freshened with tenth-grade students who did not have the opportunity (e.g., out of country) to be in the eighth-grade sample during the base-year (see NELS:88 First Follow-up Final Technical Report-NCES 94-632).

During second follow-up data collection activities (1992), data were collected from students, dropouts, parents, teachers, school administrators, and extant high school transcripts. Again, as was done in the first follow-up, the sample was freshened. In addition, transcripts were collected from 13,173 respondents who had graduated by the fall of 1992. For the analysis presented in this report, 6760 respondents were classified as college-bound with complete transcript data (used for this report), 244 were classified as college-bound with missing transcript data (not used in this report), 3834 were classified as non-college-bound high

school graduates, and 2335 were classified as unknown (see NELS:88 Second Follow-up Student component Data File User's Manual - NCES 94-374).

Characteristics of the Sample used for this Report

The student sample used for this study included all graduating seniors who met the following criteria: (1) graduated by the summer of 1992; (2) transcripts were collected as part of the second follow-up data collection activities; (3) the transcript included records of courses taken in 9th, 10th, 11th, and 12th grades; (4) the transcript reported at least 16 credits; (5) the results of SAT or ACT tests were included on the transcript, and the student indicated that he/she had applied to one or more postsecondary schools (variable F2S60A). For purposes of this analysis, the second follow-up transcript weight was used. The analytical sample used in this report was considered to be representative of high school seniors who have applied to one or more colleges and have taken the SAT/ACT tests.

Analysis of Course-Taking Criteria for Discrimination

As a check for fairness in using criteria for course taking, an analysis was conducted to determine how reasonable the number of credits earned in English and Social Studies were for high ability (GPA of 3.5+ and SAT score of 1250 plus) students. It was hypothesized that high ability students may not be required to take four credits in English or 3 credits in social studies during their high school tenure. The high ability student may have had these requirements waived because of past performance or because he or she was a math or science concentrator. In the following table (table 3), the proportion of high ability (GPA of 3.5 or higher and SAT of 1250 or higher) students meeting the requirements for four English and three social studies credits are compared to lower ability college-bound students.

Table 3.—Percentages of students meeting criteria for specified number of credits earned in specific curriculum areas by ability level

Met criteria for 3.5 GPA and 1250 SAT	English		Math	Science	Social Studies		Foreign Language
	3	4	3	3	3	2	2
Total	99.1	91.4	97.7	95.0	82.0	99.8	87.3
Public	99.3	92.1	97.1	94.5	84.3	99.9	89.7
Catholic	low n	low n	low n	low n	low n	low n	low n
Other private	98.4	88.4	99.9	98.2	52.5	98.4	60.8
NAIS	96.6	75.7	99.9	96.2	78.4	96.7	99.0
Other Religious	low n	low n	low n	low n	low n	low n	low n
Did not meet one or two of the above two criteria (3.5 GPA and 1250 SAT)							
Total	99.4	89.7	89.9	79.6	91.7	99.8	79.4
Public	99.3	89.6	88.8	80.0	90.9	99.9	77.4
Catholic	99.8	92.3	95.6	76.8	98.8	100.0	89.8
Other Private	99.4	86.5	96.9	78.5	91.0	99.5	93.2
NAIS	99.2	86.7	97.5	90.6	89.1	99.1	98.2
Other Religious	99.6	86.2	96.2	64.3	92.3	100.0	87.3

There did appear to be some unfairness introduced by using criteria that required 3 or more credits in social studies or 4 credits in English, particularly in the case of other private schools where only 52.5 percent (78.4 percent for NAIS schools) of high ability students met the criteria for 3 social studies courses as compared to 91.0 percent for other private school students who did not meet the high ability criterion. It should also be pointed out that only 75.7 percent of higher ability NAIS students met the criteria of 4 English courses as compared to 86.7 percent for NAIS school students who did not meet the higher ability criteria.

Characteristics of Retained and Excluded Students

Table 4 presents the characteristics of 1992 high school graduates who were: (1) retained college-bound students (column labeled "complete cases"); (2) excluded college-bound students who had incomplete transcript data (column labeled "Not complete cases"); (3) excluded non-college-bound students who did not have immediate plans for postsecondary education (column labeled "Not college-bound"); and (4) excluded respondents who had missing data (column labeled "Unknown"). In comparing college-bound students who were included in the study (column 5) vs. all college-bound students (column 2), table 4 indicates that there does not seem to be any systematic bias, in that the proportion of the subgroups were similar for both groups (see columns 2 and 5) by race/ethnicity, by SES, and by school type.

Table 4.—Characteristics of NELS:88 students who graduated by the summer of 1992 and participated in transcript study.

	1992 High School Graduates				College Bound	
	Total	College bound*	Not college bound**	Unknown***	Complete cases	Not complete cases
# of Cases (unwted)	13,173	7,004	3,834	2,335	6,760	244
	* Weighted Percents *					
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Gender						
Male	50.3	46.4	56.2	50.5	46.1	53.7
Female	49.7	53.6	43.8	49.5	53.9	46.3
Race/Ethnicity						
Asian	4.4	4.9	3.1	5.4	5.0	4.6
Hispanic	9.4	6.5	12.5	11.6	6.6	4.2
Black	11.3	8.2	13.2	16.4	8.2	9.7
White	74.1	79.8	70.2	65.3	79.8	79.8
Native American	0.8	0.5	1.1	1.3	0.5	1.8
Socio-Economic Status						
Low	17.6	9.1	25.9	26.2	9.1	10.4
Middle	52.0	46.9	58.0	55.5	46.7	52.2
High	30.5	44.0	16.2	18.3	44.3	37.4
Type of School						
Public	90.1	84.9	95.0	95.9	84.8	87.3
Catholic	5.9	9.5	2.7	1.7	9.6	6.1
Other Private	4.0	5.7	2.3	2.4	5.7	6.6
Positive Teacher Comments						
Yes	29.1	42.2	14.1	19.5	42.1	45.0
No	70.9	57.8	85.9	80.6	57.9	55.0
Participate in Two or More Activities						
Yes	51.2	67.2	31.0	42.3	67.7	55.3
No	48.8	32.8	69.0	57.7	32.3	44.8

* College Bound — Includes following two groups.

Complete cases — Students classified into this category had graduated by 1992 and participated in the transcript study. In addition, the transcript included complete SAT/ACT scores, course-work at 9th, 10th, 11th, and 12th grades, and at least 16 total credits. The student also indicated via variable F2S60A that he/she had applied to one or more postsecondary schools.

Not complete cases — Two criteria needed to be satisfied for a student to be classified as missing. First, the student had graduated by 1992, indicated that he/she had applied to one or more postsecondary schools, participated in the transcript study, and had taken the SAT/ACT tests. Second; (1) the transcript included incomplete SAT/ACT scores; or (2) missing course data by year; or (3) the total credits summed to less than 16.

** Not College-Bound — Same definition as college-bound except the student did not indicate that he/she applied to any colleges and/or SAT/ACT scores were not noted on high school transcript.

*** Unknown — Includes those 1992 high school graduates for whom a determination of college-bound status could not be ascertained with the variables that were used in this analysis (i.e., missing response to 'applied to one or more postsecondary schools'; or indicated 1 or more schools applied to, but missing components of SAT/ACT test scores).

Sampling Errors

The data were weighted using the second follow-up transcript weight (F2TRSCWT) to reflect the sampling rates (probability of selection) and adjustments for unit nonresponse. The complex sample design was taken into account when a Taylor series approximation procedure was used to compute the standard errors in this report. The standard error is a measure of the variability of a sample estimate due to sampling. It indicates, for a given sample size, how much variance there is in the population of possible estimates of a parameter. If all possible samples were selected under similar conditions, intervals of 1.96 standard errors below to 1.96 standard errors above a particular statistic would include the true population parameter being estimated for about 95 percent of these samples (i.e., 95 percent confidence interval). Comparisons noted in this report are significant at the 0.05 level and were determined using Bonferroni adjusted t-tests.

Standard errors for all of the estimates are presented in Tables 1 and 2. These standard errors can be used to produce confidence intervals. For example, an estimated 19.2 percent of college-bound high school graduates had a GPA of 3.5 or higher (see Table 1). This figure has an estimated standard error of 0.924 percent. Therefore, the estimated 95 percent confidence interval for this statistic is approximately 17.39 percent to 21.01 percent.

Definitions of Criteria Used

(1) Overall High School Grade Point Average (GPA) – 4-point scale, where an 'A' average is equal to 4.0 and a 'D' is equal to 1.0. Each course in the transcript file that was taken for credit (not pass/fail) was used in the computation. The numerator was the sum of each course grade factor times the standard course credits. The denominator was the sum of standard course credits. The grade factor was assigned as follows:

A+,A	= 4.0
A-	= 3.7
B+	= 3.3
B	= 3.0
B-	= 2.7
C+	= 2.3
C	= 2.0
C-	= 1.7
D+	= 1.3
D	= 1.0
D-	= 0.7
F	= 0.0

(2) SAT Equivalent Score – An SAT composite score was calculated by summing the SAT math and verbal test scores as reported on student transcripts. If any one of these two scores was missing, the composite score was set to missing. If the SAT composite was missing or not reported on a transcript, the ACT composite test score (again from transcript) was used to create an equivalent SAT composite score. In creating an equivalent SAT composite test score, weighted percentiles were created using the college bound (complete) subsample for SAT and ACT composite scores found on the NELS:88 transcript file. ACT test scores were examined, by comparing the weighted percentiles for SAT test scores of 950, 1100, and 1250 (cutoffs used in analyses reported in this paper). These percentiles were found to be 44 percent, 70 percent, and 88 percent respectively, which equate to ACT test scores of 21, 24, and 28. In examining these three ACT test scores, though, it was found that an ACT score of 21 corresponded to weighted percentiles of 41 percent to 48 percent; an ACT score of 24 corresponded to weighted percentiles of 65 percent to 70 percent; and an ACT score of 28 corresponded to weighted percentiles of 87 percent to 91 percent. In an attempt to improve this possible discrepancy in the crosswalk between ACT and SAT scores, the following steps were taken:

- 62.5 percent (5 out of each 8) of ACT scores of 21 were randomly assigned an SAT950 score of 1 with the remaining students in this category receiving a 0.
- 16.6 (1 out of each 6) of ACT scores of 24 were randomly assigned an SAT1100 score of 1 with the remaining students in this category receiving a 0.
- 80 percent (4 out or each 5) of ACT scores of 28 were randomly assigned an SAT1250 score of 1 with the remaining students in this category receiving a 0.
- Course Patterns – Course-taking patterns were created from courses recorded on high school transcripts (e.g., 4E+3M+3S+3SS+2FL). The total number of credits earned in each curriculum area were summed and combined to form a composite course taking pattern variable. Courses were summed using the NAEP high

school transcript study taxonomy. These composite variables were found on the NELS:88 transcript file.

- Teacher comments - Because many teacher recommendations are written prior to the senior year of high school, first follow-up teacher responses were used as the primary source of information for the teacher comment variable. If first follow-up data was missing (e.g., incomplete/missing teacher data or student was freshened into study as 12th grader), data from second follow-up teachers was used. The following variables were used to create the teacher comment variable.

First Follow-up Teacher Variables

F1T1_4 - Will this student probably go to college?
F1T1_13 - Is this class NOT challenging enough for this student?
F1T1_14 - Have you recommended this student for academic honors, advanced placement, or honors classes?
F1T2_3 - Which of the following best describes the "track" this class is considered to be?

Second Follow-up Teacher Variables

F2T1_4 - Student seems to be motivated to pursue postsecondary education.
F2T1_8 - The difficulty level of this class is not challenging enough for this student.
F2T1_18A- The teacher wrote a postsecondary recommendation for this student.
F2T2_3 - Which of the following best describes the "track" this class is considered to be?

In selecting students who were classified as potentially receiving a "glowing" teacher recommendation that may be needed for the most competitive colleges, the following conditions had to be met:

- If at least one first follow-up teacher's response for a given student (up to two teachers per student) met the following criteria, the student was classified as receiving a potentially "glowing" recommendation.

IF F1T1_4 = 1 AND ** ABILITY TO GO TO COLLEGE - must meet** (F1T1_13=2 OR F1T1_14=2 OR F1T2_3=2) **NOT CHALLENGED; RECOMMENDED STUDENT; ADVANCED OR HONORS - must meet at least one of these three conditions **

To meet this criteria, at least one teacher had to respond that the student had the ability to go on to college. In addition, the same teacher had to respond that one of the following three conditions existed: (1) the class was not challenging for the student; (2) the teacher had recommended the student for academic honors, advanced placement, or honors classes; or (3) the teacher indicated the current class was advanced or honors.

- If first follow-up teacher data were incomplete or missing (e.g., students freshened into study as seniors), second follow-up teacher responses (math or science teachers) were used to create "recommendation" variable. For students meeting these conditions (e.g., missing 1st follow-up teacher data), the following code was used to create teacher recommendation variable.

IF F2T1_4 = 1 AND ** MOTIVATED TO PURSUE POSTSECONDARY EDUCATION; (F2T1_8=2 OR F2T2_3=5 OR F2T1_18A=1) **NOT CHALLENGED; AP COURSE; WROTE RECOMMENDATION

To meet this criteria, the second follow-up teacher had to indicate that the student was motivated to pursue postsecondary education. In addition, the teacher had to respond that one of the following three conditions existed: (1) the class was not challenging to the student; (2) the teacher indicated the current class is advanced placement; or (3) the teacher indicated that he/she had written a postsecondary letter of recommendation for student.

- Participation in extracurricular school activities - Students who participated in two or more activities during their 12th grade year met this criteria if they also indicated on the second follow-up questionnaire that they spent greater than zero hours per week in these activities. In deriving this composite, participation in multiple sports counted as one activity. Also, if the students responded that their school did not offer a particular activity, then the responses to that activity were set to missing. If all activity responses were missing, the composite variable for student participation was set to missing.

Other variables used in analysis

Gender of student (F2SEX) — F2SEX was based on the first follow-up (F1SEX) composite and was augmented by second follow-up new student supplement information (in F2N2) if appropriate or, if still missing, by imputation from student first names.

Student's Race/ethnicity (F2RACE1) — F2RACE was based on F1RACE (first follow-up race/ethnicity variable) and was supplemented when appropriate with second follow-up new student supplement data (in F2N17). If F2RACE1 was still missing, available information from the contractor's Survey Management System was used to fill in missing values.

Socio-Economic Status of student's family (F2SES1Q) — Indicated the quartile into which F2SES1 falls. F2SES1 was constructed using base year parent questionnaire data, when available. The following parent data were used: Father's education level, mother's education level, father's occupation, mother's education level, and family income (data coming from BYP30, BYP31, BYP34B, BYP37B, and BYP80). See page H-12 in NELS:88 Second Follow-up User's Manual for a detailed description of procedures used to create the SES variable.

Type of School attended by student (G12CTRL1 and G12CTRL2) — These school level composite variables classified the student's second follow-up school type into public, Catholic, other religious, and NAIS, as reported by school and school association lists.

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